UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,097	07/29/2003	Jeffrey D. Hooker	03-0077.01	8484

21491 7590 08/09/2006

LANIER FORD SHAVER & PAYNE
P O BOX 2087
HUNTSVILLE, AL 35804

EXAMINER	
CHORBAJI, MONZER R	

ART UNIT	PAPER NUMBER
1744	

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/630,097	HOOKER, JEFFREY D.	
	Examiner	Art Unit	
	MONZER R. CHORBAJI	1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,8,10-15 and 36-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,8,10-15 and 36-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *7/29/03&7/26/04* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/7/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This final action is in response to the amendment received on 05/23/2006

Claim Objections

1. Claims 15 and 42-43 are objected to because of the following informalities: Claim 15 is a canceled claim, which may reinstated only as a new claim with a new claim number. See MPEP 714. Also, claim 42 depends on claim 43 and claim 43 depends on itself. In this action, both claims 42-43 are considered to depend on claim 41. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-5, 36-39 and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wrezel et al (U.S.P.N. 5,128,162) in view of Ergun et al (U.S.P.N. 6,440,057).

Regarding claims 1 and 41, Wrezel discloses an apparatus in figure 1 that includes the following: a first tank (figure 1:102), a second tank (figure 1:106), a third tank (figure 1:112), a reaction chamber (figure 1:104) having an inlet (two unlabeled inlets for reaction chamber 104 in figure 1) that is capable of receiving an emulsion being a combination of fatty acids, reaction chamber having an outlet (unlabeled outlet for reaction chamber 104 in figure 1), a natural gravity separatory (col.15, lines 12-14) coupled to the reaction chamber outlet (figure 1:114 and col.15, lines 11-13) such that the separatory is capable of discharging fatty acid alkyl and a centrifuge (figure 1:110 and col.6, lines 3-57) that is capable of receiving the separatory discharge and is also capable of removing impurities from fluids. With regard to the tanks containing the various recited liquids, it is considered intended use that does not further limit the scope of the claim. The tanks are capable of holding and are capable of providing such featured liquids. See MPEP 2114. Wrezel fails to teach the use of ultrasonic energy. Ergun teaches the following: the use of an ultrasound device (col.3, lines 9-13 and col.8, lines 54-57), operating temperature range of between 40 to 70 degrees Celsius (col.8, lines 59-61) and the use of high pressure pump (col.8, lines 33-35) that is capable of operating at a pressure value of between 1.0 to 5.0 atmospheres. Regarding, the recited frequencies and power density values, the ultrasound device of Ergun is capable of generating such values. See MPEP 2114. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a high-pressure pump to Wrezel apparatus in order to introduce the fats and the solution to the transesterification reaction section as taught by Ergun (col.8, lines 33-37) and to further

add an ultrasound device to Wrezel apparatus since the use of ultrasound will result in enlarging the border surfaces of the transesterification reaction leading to an increased rate and faster rate for reaching the chemical balance state as taught by Ergun (col.7, lines 47-63).

Regarding claims 2-5, 37-39 and 42-44, Wrezel teaches the following: the use of animal fats (col.2, lines 14-15), the use of vegetable oils (col.2, lines 27-28), the use of sodium hydroxide (col.5, lines 58-59) and the use of methanol (col.4, lines 2-3).

Regarding claim 36, Wrezel teaches a third tank (figure 1:112) that is capable of providing alcohol at an excess loading level of about 0% to about 2.4% of stoichiometric requirements per weight of the fatty acid. See MPEP 2114.

5. Claims 8-15 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wrezel et al (U.S.P.N. 5,128,162) in view of Ergun et al (U.S.P.N. 6,440,057) as applied to claims 1, 39 and further in view of Vanderspurt et al (U.S.P.N. 4,256,675).

Regarding claim 8, Wrezel fails to teach the use of cooling jacket containing a pump and the use of an ultrasound generating means. Vanderspurt teaches the use of a cooling jacket with a pump (figure 1:13 and 40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Wrezel apparatus by including a cooling jacket containing a pump as taught by Vanderspurt since in order for the centrifugation step to be successful, the temperature in the centrifugation device must be maintained at 25 degrees Celsius (Wrezel reference, col.7, lines 34-38).

Vanderspurt fails to teach the use of an ultrasound generating means. Ergun teaches the use of an ultrasound device (col.3, lines 9-13 and col.8, lines 54-57). As a result, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add an ultrasound device to Wrezel apparatus since the use of ultrasound will result in enlarging the border surfaces of the transesterification reaction leading to an increased rate and faster rate for reaching the chemical balance state (Ergun reference, col.7, lines 47-63).

Regarding claims 10-11, Wrezel fail to teach the use of ultrasound generating means. Ergun teaches the use of an ultrasound device (col.3, lines 9-13 and col.8, lines 54-57). Regarding, the recited frequencies and power density values in claims 10-11, the ultrasound device of Ergun is capable of generating such values. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add an ultrasound device to Wrezel apparatus since the use of ultrasound will result in enlarging the border surfaces of the transesterification reaction leading to an increased rate and faster rate for reaching the chemical balance state (Ergun reference, col.7, lines 47-63).

Regarding claim 12, both Wrezel and Vanderspurt fail to teach operating temperature range of between 70 to 80 degrees Celsius and operating pressure of between 1.0 to 5.0 atmospheres. Ergun teaches operating temperature range of between 40 to 70 degrees Celsius (col.8, lines 59-61) and the use of high pressure pump (col.8, lines 33-35) that is capable of operating at a pressure value of between 1.0 to 5.0 atmospheres. Therefore, it would have been obvious to one of ordinary skill in the

art at the time the invention was made to add a high-pressure pump to Wrezel apparatus in order to introduce the fats and the solution to the transesterification reaction section as taught by Ergun (col.8, lines 33-37).

Regarding claims 13-15, Wrezel teaches the use of natural gravity separator (col.15, lines 12-14). With respect to the features of introducing fatty acid alkyl ester into the centrifuge and that the washed and dried fatty acid alkyl ester meeting the ASTM standard for biodiesel as recited in claims 14-15, it is considered intended use that does not further limit the scope of the claim. See MPEP 2114.

Regarding claim 40, Wrezel fails to teach the use of cooling jacket containing a pump and the use of an ultrasound generating means. Vanderspurt teaches the use of a cooling jacket with a pump (figure 1:13 and 40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Wrezel apparatus by including a cooling jacket containing a pump as taught by Vanderspurt since in order for the centrifugation step to be successful, the temperature in the centrifugation device must be maintained at 25 degrees Celsius (Wrezel reference, col.7, lines 34-38).

Vanderspurt fails to teach the use of an ultrasound generating means. Ergun teaches the use of an ultrasound device (col.3, lines 9-13 and col.8, lines 54-57). Regarding, the recited frequencies and power density values, the ultrasound device of Ergun is capable of generating such values. See MPEP 2114. As a result, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add an ultrasound device to Wrezel apparatus since the use of ultrasound will result in

enlarging the border surfaces of the transesterification reaction leading to an increased rate and faster rate for reaching the chemical balance state (Ergun reference, col.7, lines 47-63).

Response to Arguments

6. Applicant's arguments filed on 05/23/2006 have been fully considered but they are not persuasive.

On page 13 of the Remarks section, applicant argues that the third thank is coupled to the apparatus at a point in the process after the reaction. Independent claim 1 uses the transitional phrase "comprising" where the structural arrangements of the various tanks can be in any order. With regard to the tanks containing the various recited liquids, it is considered intended use that does not further limit the scope of the claim. The tanks are capable of holding and are capable of providing such featured liquids. See MPEP 2114.

On page 16 of the Remarks section, applicant argues that, "Therefore, the process in Wrezel does not call for the use of cooling means at all around the centrifuge to maintain its temperature as the examiner proposed." The examiner disagrees. One of ordinary skill in the art upon reading Wrezel and Vanderspurt would release placing the cooling jacket including a pump of Vanderspurt into Wrezel apparatus since in order for the centrifugation step to be successful, the temperature in the centrifugation device must be maintained at 25 degrees Celsius (Wrezel reference, col.7, lines 34-38).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

8. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R. CHORBAJI whose telephone number is (571) 272-1271. The examiner can normally be reached on M-F 9:00-5:30.

10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, GLADYS J. CORCORAN can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MRC MRC

GLADYS JP CORCORAN
SUPERVISORY PATENT EXAMINER